Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services

STATEMENT OF BASIS

Baton Rouge Chemical Plant
Advanced Wastewater Treatment (AWT) Unit
ExxonMobil Chemical Company
Baton Rouge, East Baton Rouge Parish, Louisiana
Agency Interest Number: 286
Activity Number: 19960016
Proposed Permit 3006-V0

The regulatory basis for the Statement of Basis is found in 40 Code of Federal Regulations (CFR) § 70.7 Permit issuance, renewals, reopenings, and revisions, subsection (a), paragraph (5) and the Louisiana Administrative Code (LAC), Title 33, Part III. AIR. Specifically §531. Public Notice and Affected State Notice, subsection A, paragraph 4. LAC 33:III.531.A.4 states:

> "The permitting authority shall provide a statement that sets forth the legal and factual basis for the proposed permit conditions of any permit issued to a Part 70 source, including references to the applicable statutory or regulatory provisions. The permitting authority shall send this statement to any person who requests it and to EPA."

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I. APPLICANT

Company:
ExxonMobil Chemical Co - Baton Rouge Chemical Plant
PO Box 241
Baton Rouge, Louisiana 70821-0241

Facility:
Baton Rouge Chemical Plant
4999 Scenic Highway, Baton Rouge, East Baton Rouge Parish, Louisiana 70805
Approximate UTM coordinates are 675.70 kilometers East and 3374.85 kilometers North, Zone 15

Responsible Official:
Mr. S.J. Vanderleeuw

II. FACILITY AND CURRENT PERMIT STATUS:

The ExxonMobil Chemical Company Baton Rouge Chemical Plant (BRCP) was founded in 1940 and played an important role in producing synthetic rubber for the military during World War II. It is now one of four ExxonMobil chemical manufacturing facilities in the Baton Rouge area. The Plant also has several manufacturing units that are located within the adjacent Refinery.

The site manufactures a variety of first generation petrochemical products used by others to produce a variety of consumer products. Feeds come primarily from the adjacent ExxonMobil Refinery, although feedstocks are also purchased from outside suppliers and delivered by tanker or barge.

The facility submitted timely applications for initial Part 70 permits for the entire facility and continues to operate pursuant to the "application shield" provided in

the program. The following table lists all of the other units at BRCP and their permitted status:

Unit	Permit No.	Date Issued	Permitting Status
Acetates	1866T(M-1)	8/2/1995	Unit shutdown: permit rescinded
AIM Tanks	2805-V0	7/12/2002	Received Title V
Aromatics	2299-V1	3/11/2003	Received Title V
AWT Thermal Combustor	1977-V0	10/19/2003	Received Title V
BELA-5	2367-V0	2/17/2006	Merged into Coproducts
BPLA	2367-V0	2/17/2006	Merged into Coproducts
BRTG	2012-V0	11/18/2002	Received Title V
CPLA	2367-V0	2/17/2006	Merged into Coproducts
CP Lab	2207	8/18/1993	Initial Title V application under review
DARLA	2367-V0	2/17/2006	Merged into Coproducts
DILA	2031-V4	11/23/2004	Merged into Maintrain
E-1000	2156-V0	7/3/2003	Received Title V Permit
E-5000	1911-V0	8/31/1999	Title V Renewal under review
Flare Gas Recovery	2390-V0	1/23/2006	Merged into Plant Infrastructure
FWPS	Grandfathered	--	Shut Down 3Q 2004
Halobutyl RLA-1 & HFU	2166-V1	7/16/2004	Received Title V Permit
HCD	2314-V0	2/20/2006	Received Title V Permit
IPA	1924-V1	7/16/2004	Received Title V Permit
Maintrain	2031-V4	11/23/2004	Received Title V Permit
MEK/SBA	2281-V0	10/1/2002	Received Title V Permit
Neo Acids	2379-V0	12/5/2005	Received Title V Permit
NOVA Alcohol	2191 (M-1)	7/12/1996	Merged into NOVA Units
NOVA Ester	2123 (M-3)	6/10/1996	Merged into NOVA Units
NOVA Tanks	2827-V0	1/20/2003	Merged into NOVA Units
NOVA Units	2123-V0		Title V Permit on Public Notice
OXO Alcohol	2365-V0	9/29/2005	Received Title V Permit

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Unit	Permit No.	Date Issued	Permitting Status
OXO Tankfield	2393-V0	9/11/2005	Received Title V Permit
PALA	1200-V2	7/16/2004	Received Title V Permit
Plasticizer	2320-V0	12/20/2005	Received Title V Permit
POX	2210-V0	4/4/2005	Received Title V Permit
RLA-3	2376-V0	4/4/2006	Merged into Vistalon
RGR	2361-V0	5/20/2005	Received Title V Permit
SCOLA	2031-V4	11/23/2004	Merged into Maintrain
Utilities	2390-V0	1/23/2006	Merged into Plant Infrastructure
VFU	2376-V0	4/4/2006	Merged into Vistalon
VISTALON	2376-V0	4/4/2006	Received Title V Permit
WILA	2390-V0	1/23/2006	Merged into Plant Infrastructure
WWTU (AWT)	Grandfathered	--	Initial Title V Permit Pending
#5 Light Ends/ Poly Unit	2396-VO	10/31/2005	Received Title V Permit
Plant Infrastructure	2390-V0	1/23/2006	Received Title V Permit

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III. PROPOSED PERMIT / PROJECT INFORMATION:

Proposed Permit

A permit application and Emission Inventory Questionnaire were submitted by ExxonMobil Chemical Co on November 25, 1996, requesting a Part 70 operating permit for the AWT Unit. Updated information dated August 31, 2005, was also received.

Most of the facilities in the AWT are grandfathered, there are no existing permits for this unit. Two Small Source Exemptions (SSE) were received for several individual sources including:

- The Moving Bed Louisiana (MBLA) Reactor, which replaced the existing trickling filters (fixed biomedia), (SSE dated April 7, 1997), and
- The addition of two new rainwater/process water detention tanks EGTK-003 and EGTK-004 (SSE dated April 6, 1999).

This is the initial Part 70 operating permit for the facility.

Project Description

The Advanced Wastewater Treatment (AWT) Unit treats process wastewaters from units at Baton Rouge Chemical Plant (BRCP). Both physical and biological treatment occurs within the process. The system consists of the following equipment and/or processes:

- Oil/water separator that removes floating oil from oily process wastewaters;
- Detention tanks that are used to temporarily store wastewater during periods of process upsets or during heavy rainstorms. The wastewaters are then

treated in a controlled manner to prevent upset to the wastewater system;

- Wastewater pH is adjusted, and emulsions and fine solids are removed at the Dissolved Air Floatation (DAF) Unit;
- A cooling tower adjusts the wastewater temperature prior to biological treatment; and
- Equalization tanks are used to mix non-oily process wastewaters with the wastewaters described above.
- Biological treatment of the wastewater occurs in two steps. The first step is the MBLA reactors where the wastewater is sparged with air. "Biomedia" floats on top of the wastewater in MBLA and moves around to provide surface area for the bacterial growth which is essential in the treatment process. The second step uses high purity oxygen (UNOX) to oxidize the organic constituents in the presence of a microbial culture.
- Clarifiers are used to enable sedimentation of suspended sludge particles. Water from the clarifiers is then discharged.
- Waste solids that are collected at DAF and UNOX are dewatered, dried, and combusted prior to offsite disposal.

BRCP proposes to permit the wastewater treatment train as an area source, identified by the new EIQ# M-83. The only exceptions to this are sources identified earlier that are previously permitted as new sources and are included separately with separate permit limits. These sources are identified by the new EIQ#s M-23 (MBLA Reactor) and T-3554/T-3255 (Detention Tanks EGTK-003 and EGTK-004).

Other minor changes and reconciliations are also being incorporated into this application as follows:

- The permitted emissions for all sources have been evaluated and reconciled where necessary based on updated emission factors, calculation methodology, and/or emission speciation.
- The language included in the tables of regulatory applicability to sources in AWT has been updated.

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- Incorporation of a specific requirement into the AWT Unit permit to provide guidance regarding the regulatory program AWT Unit Emissions may be subject to per 40 CFR 63 Subpart FFFF, as promulgated, Specific Requirement Nos. 142 and 143 of this initial Part 70 operating permit;
- Addition of specific requirements to address the addition or removal of fugitive emission piping components, FUG030, Specific Requirement No. 106 of this initial Part 70 operating permit;
- Addition of a specific requirement to address containers, stated as " Containers: Exempt from monitoring. Containers that have capacities <0.42 cubic meters (111 gallons) and meet DOT specifications and testing requirements under 49 CFR 178 and that hold benzene-containing wastes with a flow weighted annual average benzene concentration >= 10 ppmw are exempt from Method 21 monitoring requirements" , Specific Requirement No. 11 of this initial Part 70 operating permit
- BRCP requests the incorporation of a Specific Condition into the AWT permit to clarify that the toxic air pollutant (TAP) emissions in this permit application are State-Only emission limits and are not federally enforceable.
- The General Condition XVII (GCXVII) and Insignificant Activities lists have been updated.

Estimated emissions in tons per year are as follows:

Pollutant	Before[1]	After[2]	Change
PM_{10}	-	-	-
NO_x	-	-	-
CO	-	-	-
SO_2	-	-	-
VOC *	31.61	258.38[3]	+226.77

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VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

Pollutant	Before[1]	After[2]	Change
Acetonitrile	-	7.71	+7.71
Benzene	-	2.02	+2.02
Biphenyl	-	3.31	+3.31
1,3-Butadiene	-	1.98	+1.98
Chloromethane	-	8.86	+8.86
Cresols	-	0.57	+0.57
Cumene	-	0.66	+0.66
Dimethylformamide	-	0.32	+0.32
Ethylbenzene	-	1.49	+1.49
Formaldehyde	-	3.90	+3.90
n-Hexane	-	20.77	+20.77
Methanol	-	151.92	+151.92
Methyl Ethyl Ketone	-	23.22	+23.22
Methyl Tert-Butyl Ether	-	9.43	+9.43
Methyl Isobutyl Ketone	-	0.37	+0.37
Naphthalene	-	23.84	+23.84
Phenol	-	0.78	+0.78
Styrene	-	6.99	+6.99
2,2,4-Trimethylpentane	-	0.89	+0.89
Toluene	-	17.81	+17.81
Xylene	-	7.88	+7.88
Total	-	294.72[3]	+294.72

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Non-VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

Pollutant	Before[1]	After[2]	Change
1,1,1-Trichloroethane	-	0.85	0.85
Ammonia	-	19.63	19.63
Hydrogen Sulfide	-	41.32	41.32
Nitric Acid		0.01	0.01
Sulfuric Acid	-	0.36	0.36
Total	-	62.51	+62.51

Other VOC (TPY): -36.34[3]

[1]The before emissions represent emissions that were grandfathered and not previously speciated/accounted for.

[2]The after emissions represent speciation of pollutants, updated emission factors, and improved calculation methodology.

[3]Speciation of VOCs appear greater than Total VOC, however, in reality, the speciation represents the variability of the concentration of the wastewater based on the worse case scenario for instantaneous emissions of all pollutants that have been observed occurring in the system over a five year period, due primarily to increased throughput to the AWT from weather related upsets and system spikes. The overall speciated emissions have not exceeded the Total VOC reported during any annual reporting period.

IV. REGULATORY ANALYSIS:

This application was reviewed for compliance with the Louisiana Part 70 operating permit program, Louisiana Air Quality Regulations, Louisiana Comprehensive Toxic Air Pollutant Emission Control Program, and NESHAP.

Prevention of Significant Deterioration Applicability (PSD) and /or Nonattainment New Source Review (NNSR) and NSPS do not apply.

The applicability of the appropriate regulations is straightforward and provided in the appropriate table or the Specific Requirements Section of the draft permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are provided in the appropriate table or the Specific Requirements Section of the draft permit.

Prevention of Significant Deterioration Applicability (PSD)/Nonattainment New Source Review (NNSR)

The proposed operational flexibility changes will not result in any changes to Criteria Pollutants which include PM_{10}, SO_2, NO_X, VOC, and CO emissions that meet or exceed the significance threshold values. Any changes in emissions are based on permitting of grandfathered sources, reconciliation of emission factors, or better speciation of data. As such, PSD permitting requirements are not applicable.

Effective June 15, 2005, the non-attainment area for ozone in which BRCP is located was redesignated from severe non-attainment for the 1-hour standard to marginal non-attainment for the 8-hour standard. Based on an emergency rule that was passed on June 10, 2005, NNSR changes associated with this redesignation came into effect. A 25 tpy increase (without regard to decreases) of VOC or NO_x, or a 10 tpy increase (without regard to decreases) of listed highly reactive VOCs (HRVOCs) triggers the netting calculations to determine the net emissions increase. If the net emissions increase is greater that 25 tpy of VOCs (including HRVOCs) or NO_x, then NNSR is triggered. Any changes in emissions are based on permitting of grandfathered sources, reconciliation of emission factors, or better speciation of data. Therefore, NNSR permitting requirements are not applicable.

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Maximum Achievable Control Technology (MACT)

These regulations define maximum achievable control technology (MACT) standards for stationary source categories of HAPs. These HAPs are as listed in the Clean Air Act Amendments of 1990.

The BRCP is a major source of HAPs because it has the potential to emit, 25 tpy or more of aggregate HAPs, or 10 tpy or more of a single HAP. As such, the AWT Unit may be subject to the Miscellaneous Organic Chemical Manufacturing NESHAP Subpart FFFF. This MACT was promulgated on November 10, 2003 and the compliance date for existing facilities is as promulgated.

Air Modeling Analysis

Air modeling analysis was not required since the PSD/NNSR significance threshold values have not been exceeded.

General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to Section VIII of the draft Part 70 permit.

Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to Section IX of the draft Part 70 permit.

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PERMIT SHIELD:

A permit shield is not a component of the proposed permit.

V. PERIODIC MONITORING:

Compliance Assurance Monitoring (40 CFR 64) is not part of this Initial Title V Permit as there are no major source units that utilize controls in the AWT Unit. However, CAM is applicable on a facility-wide basis.

VI. APPLICABILITY AND EXEMPTION OF SELECTED SUBJECT ITEMS

The applicability or exemption of selected subject items are provided in Section XI of the proposed Part 70 permit.

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VII. Streamlined Requirements			
Unit or Plant Site	**Programs Being Streamlined**	**Stream Applicability**	**Overall Most Stringent Program**
AWT/FUG030	40 CFR 61 Subpart V	Streams containing 10% VHAP	LA Non-HON MACT
	40 CFR 61 Subpart J	Streams containing 10% Benzene	
	LAC 33:III.2122	Streams containing 10% VOC	
	LA Non-HON MACT	Streams containing 5% VOHAP	

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VIII. GLOSSARY

Carbon Monoxide (CO) – A colorless, odorless gas, which is an oxide of carbon.

Grandfathered-those facilities that were under actual construction or operation as of June 19, 1969, the signature date of the original Clean Air Act. These facilities are not required to obtain a permit, however, facilities that are subject to Part 70 (Title V) requirements lose grandfathered status and must apply for a Part 70 Operating Permit.

Maximum Achievable Control Technology (MACT) - The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

National Emission Standards for Hazardous Air Pollutants (NESHAPs)- The NESHAPs were originally required by the 1970 Clean Air Act (CAA). These standards were developed for sources and source categories that were determined to pose adverse risk to human health by the emission of hazardous air pollutants (HAPs). The standards are set "at the level which...provides an ample margin of safety to protect the public health from such hazardous air pollutant." *These risk-based NESHAPs are located in 40 CFR 61. The NESHAPs* program applies to all existing and new/modified sources. Congress directed EPA to develop a program to further enhance the regulation of HAPs in Section 112 of the 1990 Clean Air Act Amendments (CAAA). While the standards for major sources of HAPs developed per this section are also designated as NESHAPs, they are established according to Maximum Achievable Control Technology (MACT). These technology-based NESHAPs are located in 40 CFR 63.

New Source Performance Standards (NSPS) – are federal standards adopted by the U.S. Environmental Protection Agency (EPA) to regulate air emissions by many types of industrial facilities, All industries subject to NSPS must meet certain general requirements,

such as monitoring and record keeping. In addition, certain specific requirements apply to each type of industry subject to NSPS. Each NSPS defines the facilities subject to it and prescribes emission limits for specified pollutants, compliance requirements, monitoring requirements, and test methods and procedures.

Nitrogen Oxides (NO_x) - Compounds whose molecules consists of nitrogen and oxygen. Organic Compound - Any compound of carbon and another element. Examples: Methane (CH_4), Ethane (C_2H_6), Carbon Disulfide (CS_2).

Nonattainment New Source Review (NNSR) – A New Source Review Permitting Program for major sources in geographic areas that do not meet the National Ambient Air Quality Standards (NAAQS) of 40 CFR Part 50. Nonattainment NSR is designed to ensure that emissions associated with new or modified sources will be regulated with the goal of improving ambient air quality.

Part 70 Operating Permit- Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: $\geq$ 10 tons per year of any toxic air pollutant; $\geq$ 25 tons of total toxic air pollutants; and $\geq$ 100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM_{10}- Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

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Sulfur Dioxide (SO_2) – An oxide of sulfur.

Toxic Air Pollutants (TAPs) – LDEQ air pollutants regulated under LAC 33 Part III, Chapter 51, Tables 1 through 3.

Title V permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) - Any organic compound which participates in atmospheric photochemical reactions; that is, any organic compound other than those which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.

Volatile Organic Liquid (VOL) - Any organic liquid which can emit VOCs (as defined in 40 CFR 51.100) into the atmosphere.